



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,943	11/19/2001	David C. Gerstenberger	22927-7030	3365

7590 03/29/2004

McCutchen, Doyle, Brown & Enersen LLP
Three Embarcadero, Suite 1800
San Francisco, CA 94111

EXAMINER

LEE, JOHN D

ART UNIT	PAPER NUMBER
----------	--------------

2874

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,943

Applicant(s)

GERSTENBERGER ET AL.

Examiner

John D. Lee

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 53-56 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 10, 11, 15-19, 27-31, 33, 35, 36, 38, 39 and 43-46 is/are rejected.
- 7) ☒ Claim(s) 7, 9, 12-14, 20-26, 32, 34, 37, 40-42 and 47-52 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Applicant's communication filed on January 2, 2004 (with a Certificate of Mailing dated December 29, 2003) has been carefully studied by the Examiner. The arguments advanced therein, considered together with the amendments made to the claims, are persuasive and the rejections based upon prior art made of record in the previous Office action are withdrawn. In particular, applicant has perfected the claim for domestic priority to the satisfaction of the Examiner, and the previously applied Arbore et al reference has been antedated. The previously applied 35 U.S.C. § 112 rejection has also been obviated and is likewise withdrawn. During a careful review of the prior art of record in this application, however, it has been discovered that a prior art document cited in the previous Office action is much more relevant than previously realized. This reference (U.S. Patent 6,483,965) is extremely pertinent to some of applicant's broader claims. Accordingly, a new rejection is set forth below. This action is **not** made final.

The drawings submitted on January 2, 2004, are acceptable.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-6, 8, 10, 11, 15-19, 27-31, 33, 35, 36, 38, 39, and 43-46 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,483,965 to Napier et al. In the paragraph bridging columns 4 and 5, Napier et al discloses an apparatus used for producing a diffraction pattern (i.e. a grating) in an optical fiber, the apparatus comprising solid state laser means (a Nd:YAG laser) for producing a fourth harmonic laser beam having a wavelength of approximately 266 nanometers. In the remainder of the Patent, Napier et al discloses means for using such fourth harmonic laser beam to

Art Unit: 2874

produce the diffraction pattern (grating) in the optical fiber. It is thus clear that Napier et al discloses the same apparatus broadly set forth in applicant's claim 1, except for the specific wavelength range of the fourth harmonic. It is noted that applicant claims that the fourth harmonic laser beam has a wavelength range of approximately 230 to 250 nanometers; Napier et al's fourth harmonic wavelength of 266 nanometers is approximately within the claimed range – at least close enough that a person of ordinary skill in the art would have found the difference to be obvious. Regarding claim 2, a Nd:YAG laser requires pumping means. Regarding claim 3, the Examiner takes official notice that the typical manner in which a fourth harmonic beam is produced is to first produce a second harmonic beam from the fundamental, and then to produce a fourth harmonic beam from the second harmonic. Regarding claims 4 and 28, a Nd:YAG laser typically operates in continuous wave mode. Regarding claims 5 and 30, the use of a Q-switch with a Nd:YAG laser is common and well-known in the art. Regarding claims 6 and 31, a Nd:YAG laser comprises a crystal (yttrium aluminum garnet) doped with a rare earth element (neodymium). Regarding claims 10, 11, 38, and 39, means for minimizing beam walkoff (for any or all of the harmonic beams) are commonly used in the art and would thus be obvious for use in the Napier et al apparatus. Regarding claims 15, 16, and 43-45, since the presence of a Q-switch in Napier et al would have been obvious as indicated above, the design of particular pulse rates and pulse widths for the Q-switch (as well as particular peak power production from the Q-switch) would also have been obvious (since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (*In re Boesch*, 617 F.2d 272,

205 USPQ 215 (CCPA 1980))). Regarding claims 18 and 36, it is believed that one of the transition wavelengths for the Napier et al Nd:YAG laser is approximately 946 nanometers. Regarding claims 19 and 46, note that Napier et al uses neodymium (Nd). Regarding claim 27, Napier et al discloses a "Bragg writer" for using the fourth harmonic beam to produce the diffraction pattern in the optical fiber. Regarding claim 29, it is noted that no details are given in the reference as to how the fourth harmonic beam is actually produced; as indicated above, however, the typical manner in which a fourth harmonic beam is produced is to first produce a second harmonic beam from the fundamental, and then to produce a fourth harmonic beam from the second harmonic. The use of a doubler crystal and a quadrupler crystal, respectively, to accomplish these functions would have been obvious since they are well known and commonly used in the art. Regarding claims 8, 17, 33, and 35, Napier et al's Nd:YAG laser comprises a crystal (yttrium aluminum garnet) doped with a rare earth element (neodymium) which clearly meets the claim limitations of a "doped garnet crystal" or a "mixed garnet".

Claims 7, 9, 12-14, 20-26, 32, 34, 37, 40-42, and 47-52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Napier et al (the closest prior art of record) does not disclose or suggest producing a fourth harmonic laser beam having a wavelength of approximately 266 nanometers from a diode laser or from an IBC diode bar laser. Having the solid state laser include multiple resonator means is also neither disclosed nor suggested by

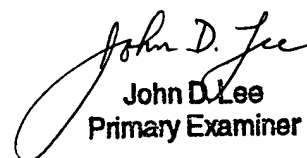
Art Unit: 2874

Napier et al. Napier et al further does not disclose or suggest having the fourth harmonic producing means be a CLBO crystal.

Claims 53-56 are allowable over the prior art of record. Napier et al (the closest prior art of record) does not disclose or suggest a method for producing a diffraction pattern (i.e. a grating) in an optical fiber, the method comprising pumping a rare-earth doped crystal with a diode laser to generate a fundamental beam, producing a second harmonic beam from the fundamental beam, and irradiating a CLBO crystal with the second harmonic beam to produce a fourth harmonic laser beam having a wavelength within a range of approximately 230 to 250 nanometers (with the fundamental wavelength being chosen so that the CLBO crystal operates noncritically phasematched), and further using the fourth harmonic beam as an input to a Bragg writer to produce the diffraction pattern in the optical fiber.

Applicant's arguments with respect to claims 1-56 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.


John D. Lee
Primary Examiner